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perhaps he overemphasizes, if measured by the standard of a complete and symmetrical system of philosophy—the instrumental theory of knowledge; but this means at most that those who study his teachings will do well to read his logical discussions in conjunction with his moral, educational and political philosophy. Whether he would subscribe to the statement, we do not know, but some of his writings suggest to us the doctrine that the inherent values to which concepts are instrumental are ultimately *inter al.* moral values.

It is not so much Dewey's philosophy as the facts of nature that negate the idea of identical development for all and the idea of equal participation in control over social resources. These facts of nature are canvassed by Dewey in various writings, and his theory squares with them. Pure science, art, worship and play are from his standpoint normal activities of human beings, human functions that certain customs of modern life tend to pervert or suppress. We hire priests to do our praying for us, professional singers to do our praising, ball teams and actors to do our playing, and scientists to do our thinking; meanwhile, we devote ourselves to a mad scramble for ability to buy things, or for a maximum of economic control, and wonder at the poverty and barrenness of all our lives. Is it "dangerous" to call attention to the fact that the spiritual enterprise of reconstructing and mastering the self is not an enterprise entirely different from that of understanding and controlling "the cosmic scenery"? Sheldon sees fit to warn his readers because Dewey has been studied and quoted by malcontents. The implications of the warning are obvious to all who cherish the wisdom of Amos and Socrates, and a solution of the question of the method of determining the dangerous or safe quality of moral ideas can not be reached in a summary fashion. The way of Dewey is to appeal to the process of history and the long-run confirmation of ideas by consequences. In his social philosophy Sheldon appears to favor medieval realism and the logic of formal authority and the Index.

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DR. A. N. WHITEHEAD'S SCIENTIFIC REALISM

"A N-ism," it has been well said, "is by its inmost being always in opposition," and the conditions which have governed the development of current realism have undoubtedly given it, for good or evil, a markedly protestant character; but the question whether the defects of this general attitude outweigh its merits must here be dismissed with the remark that not the least hostile influence oppos-

ing the new tendency has been the subjectivist aspect—whether frankly such or masked as “idealist”—of contemporary science. It serves no purpose, again, to discuss the reasons for this state of things; the fact must just be accepted. But this suffices to give to any exception from the general rule an unusual degree of importance; when therefore a mathematician and physicist essays “the basis of a natural philosophy which is the necessary presupposition of a recognized speculative physics”¹—reorganized, that is, in accordance with recent developments—when he approaches his subject as an out and out realist, precluding his theory by an emphatic protest against subjectivism, the course of his investigation at once assumes the highest degree of interest.

Mark first of all the uncompromising emphasis of Dr. Whitehead's protest. “There is now reigning in philosophy and in science an apathetic acquiescence in the conclusion that no coherent account can be given of nature as disclosed in sense-awareness without dragging in its relations to mind. The result has been disastrous both to science and to philosophy.”² Even if philosophy is less apathetic than Dr. Whitehead supposes, still this is sufficiently provocative; it raises most of the questions at issue at the moment. What, *e.g.*, is nature? Nature, for Dr. Whitehead, is what “we observe in perception through the senses; something which is not thought and which is self-contained for thought.” Nature is “independent of thought” in the sense that it “can be thought of as a closed system whose mutual relations do not require the expression of the fact that they are thought about” (p. 3). In saying this Dr. Whitehead is fully aware that his position is not, metaphysically, final. But he is not aiming at “metaphysical doctrine”; all he desires is so to delimit the content of Nature that that content can be investigated and systematized without confusing the inquiry by any references to mind, which, whatever else it is, is not, primarily at least, nature. He posits no metaphysical “disjunction of nature and mind” (p. 4), but accepts their intimate relation and union; he merely wishes reflectively to extend the unreflective attitude of everyday experience, which puts “things” on one side and “mind” on the other, to scientific thought in general.³

Nor can it be objected that such a procedure, when it does not ignore the issues, simply begs the question. Problems remain in plenty; how, *e.g.*, “factors” become differentiated from “fact” on the one hand and from “entities” on the other (p. 13); the relation,

¹ *The Concept of Nature*, by A. N. Whitehead, p. vii.

² *Ibid.*, p. 27.

³ P. 29: “adopting our immediate instinctive attitude towards perceptual knowledge.”

again, between sense-awareness and thought (p. 14); the relative logical priority of fact and factors; and many another. The point here is that these questions must be assigned their proper position; their discussion must not be constantly introduced into the investigation of Nature, as an "illegitimate importation into the philosophy of natural Science" (p. 28)—as in short one of those metaphysical red herrings which disport themselves in the ocean of thought. Certainly epistemology is in one aspect a natural science on precisely the same footing, *e.g.*, as physiology; but I think that Dr. Whitehead's treatment fully justifies his conclusions, despite any philosophic comments which may quite justifiably be made on them; and it is then the realism of his developed position which appears to me as important as it is unusual.

It is not, in the first place, a noumenal realism; both "real" substratum and "phenomenal" attributes are dispensed with, as depending on "a distinction which is no distinction at all" (p. 16); and with these, again, "primary" and "secondary" qualities⁴ (p. 27); the philosophy of science then becomes "the philosophy of the thing perceived. Everything perceived is in nature. We may not pick and choose. The red glow of sunset should be as much part of nature as are molecules and electric waves. It is for natural philosophy to analyze how these elements of nature are connected, refusing to countenance any theory of psychic additions to the object known in perception" (pp. 28, 29). There are not, in brief, two natures, one "apprehended in awareness," and the other "the cause of awareness"; "there is but one nature, the nature which is before us in perceptual knowledge" (p. 40); and this "one nature," finally, is itself not merely apparent, as contrasted, *i.e.*, with "conceptual formulæ of calculation" such as molecules and ether (p. 45).

Dr. Whitehead's adoption of such a definite standpoint, enforced by the arguments set forth in the first two chapters of his book, undoubtedly constitutes a weighty confirmation of the main contentions of realism, doubly valuable and encouraging as coming from an independent and (primarily) non-philosophic quarter. It marks, it is to be hoped, a turning point in the course of discussion. Science, hitherto a powerful, even if passive, ally of subjectivist ontology, promises to transfer her support and allegiance to the opposite camp.⁵ For Dr. Whitehead is by no means alone in his views, although he has given them more precise and systematic form than

⁴ It may be of interest to point out that before Locke, to whom Dr. Whitehead seems to assign this distinction, it had been endorsed by two great scientists—Boyle and Galileo.

⁵ Dr. Whitehead's psychology, as very briefly outlined on p. 188, seems to be, however, unnecessarily subjectivist. I can not help thinking that his whole position would be improved by the extension of realism to this aspect of the subject.

any of his collaborators. The investigators of radio-activity and its developments are prepared to accord to electrons, atoms, and molecules, with their mass properties and spatial configurations, a reality that is continuous and truly consubstantial with that of the macroscopic objects of every-day experience.⁶ Realism of this type, again, appears to me to accord with Platonic and Hegelian idealism, so long as it does not explicitly question those presuppositions in virtue of which, as realism, it exists. But these Dr. Whitehead, from his scientific standpoint, is entitled to ignore; they lie, as he contends, outside his province, and to force them into prominence only confuses the issue; and confining myself in the main to the same point of view—"endeavoring to exhibit the type of relations which hold between the entities we perceive as in nature" (p. 45)—I should like to consider his results. It is peculiarly difficult, however, for those who are principally interested in philosophy to appreciate the precise character of Dr. Whitehead's aim. He is concerned with the known content of Nature, with its adequate description and analysis; so that considerations of genesis, whether psychological or epistemological, as also of logical priority, either do not arise at all or enter into the discussion only indirectly and remotely; and unless this is constantly borne in mind his work can not be properly appreciated.

1. There appears to be a fundamental difficulty at the outset, in the explication given on pp. 13-15. "There are three components in our knowledge of nature, fact, factors, and entities. Fact is the undifferentiated terminus of sense-awareness; factors are termini, differentiated as elements of fact." Next, "the immediate fact"—undifferentiated, that is—"is the whole occurrence of nature as an event present for sense-awareness, and essentially passing. The ultimate fact (undifferentiated), for sense-awareness is an event. This whole event is discriminated into partial events." Thus, beginning from nature, we have two parallel divisions of one and the same total content, (a) as "fact" into "factors" and (b) as "event" into "partial events"; and since both factors and events derive from the same original totality—since all the factors make up the fact which is again the whole event made up by events—then it would seem that events and factors must be somehow equivalent to each other; factors, *i.e.*, must be events, and events, factors. But this is not the case; for there are "other factors in nature which are not events."⁷ But if this is true, then it would seem to follow either (a) that the whole of events is not really a whole, because it omits some factors;

⁶ Cf. *Nature*, Nov. 6, 1919, p. 230.

⁷ Cf. p. 124—"other factors of nature which do not share in the passage of events."

or (b) the whole is not an event, because it contains factors which are not events. Both alternatives materially affect Dr. Whitehead's theory of time and space, because these are "abstractions from events."⁸

The obscurity on this point is increased when these factors which are not events become later on defined as "objects"; for some objects at least are only intellectual abstractions. "Objects for our knowledge may be merely logical abstractions . . . the object . . . is a mere abstract concept . . . an abstract relation, although it is there in nature" (p. 126). Obviously we have travelled a long way from sense-awareness and its content; and I recur to the subject later on in connection with "moments."

A somewhat similar ambiguity marks the more special treatment of time in Chap. III. Again we find (p. 49), "in the first place there is posited a general fact; something is going on; there is an occurrence for definition." At first sight this seems to accord with the preceding statement already considered; we have a totality which is an event, and which may be further distinguished either into events or into factors; but the fact which was previously defined as the undifferentiated terminus of sense-awareness, here comprises two "sets of entities, entities perceived in their own individuality and other entities apprehended as relata." The first are then "discerned," and constitute "the field directly perceived"; the others are "discernible" and are in relation to the discerned—directly perceived—field; and "this complete general fact is the discernible and comprises the discerned." How then can "fact," or "complete general fact," be undifferentiated? There are two alternatives: (a) it falls apart into the two mutually exclusive divisions of discernible and discerned; or (b) it is discernible and includes (comprises) the discerned, but if so, it can only be discernible relatively to something discerned. Both alternatives therefore imply differentiation. "Fact," *i.e.*, has lost its primary undifferentiated character, as is further shown by its constituents now being "relata in definite relations to some definite entities in the discerned field." Thus the primitive absence of differentiation has given place to definiteness of relation.⁹

2. But let us accept this distinction between discernible and

⁸ Cf. p. 13—"in the course of analysis space and time should appear." It is important to notice Dr. Whitehead's attitude on this point as compared with Professor Alexander's theory of space and time. For him "Space-Time is the stuff out of which all existents are made. Existents are complexes of Space-Time" (*Proc. Arist. Soc.*, Vol. XVII, p. 417, and *Space, Time and Deity*). For Dr. Whitehead, on the other hand, "space and time spring from a common root, and the ultimate fact of experience is a space-time fact" (p. 132).

⁹ "Discernible" again has two senses: a wider on p. 50 ("complete general fact"), and a narrower on p. 53 ("general present fact").

discerned. The next important point is Dr. Whitehead's exposition of the connection between Nature and sense-awareness. He has carefully worked out the relations between sense-awareness, mind and thought; and if it were possible to do so I should refrain from any further discussion; the subject pertains, as Dr. Whitehead contends, to mind rather than to Nature.

But his position here has so important a bearing on his philosophy of Nature that some comment is unavoidable. He seems to me to have followed that perilous tendency which (as a reaction against subjective idealism) attends all realism—that is to attach undue importance to sense-awareness, as such. He tends to hypostatize sense-awareness, to isolate it overmuch from mind operating as a whole, somewhat as faculty psychology distinguished between will and thought and feeling. Consider, *e.g.*, the assertion (p. 14) "the immediate fact for awareness is the whole occurrence of nature."¹⁰ Obviously this can not be taken literally; no one can be sensibly aware of, or even perceive, the whole of Nature. Given the conditions, Nature may be discernible or perceivable or "awarable";¹¹ and then molecules, electrons and electric waves are "parts of nature" (p. 29). They would appear therefore to be "natural entities"; but on the other hand "entities are factors," and "factors are termini of sense-awareness," which "discloses factors which are the entities for thought"; further, the relations "between natural entities are themselves natural entities—factors—there for sense-awareness" (pp. 12–14). This is sufficiently definite;¹² but plainly in two directions—with regard to Nature in its entirety as in its minutest constituents—the two terms, sense-awareness and perception, bear the widest possible meaning; for in both aspects Nature actually becomes known through sense-awareness supplemented by conception, inference and calculation; but in both aspects, again, Nature is real; for "scientific laws are statements about entities in nature; molecules and electrons are factors in nature" (pp. 45, 46).

But when Dr. Whitehead undertakes a more systematic analysis of Nature, results vitally different are obtained as to the "entities posited for knowledge in sense-awareness." In Chap. III. we find that what may be called the unit factor or initial datum of these natural entities is a complex "event—a place through a

¹⁰ Cf. also, "the philosophy of science is the philosophy of the thing perceived. Everything perceived is in nature. Nature is that which we observe in perception through the senses" (pp. 28, 29, 30).

¹¹ Cf. p. 52, "signified events include events in the past as well as the future"; an event being "a place through a period of time."

¹² *Ibid.*, "the complete general fact which is all nature now present as disclosed in sense-awareness."

period of time"—a complex, *i.e.*, within which space, time, and other entities may be discriminated. The totality of simultaneous events constitutes another fundamental datum, a "duration, a complex of partial events"; and both events and durations possess, essentially, "temporal thickness"—"a duration is a concrete slab of nature, an essential factor disclosed in sense-awareness; not a mere abstract stretch of time." It is, in short, a longer or briefer process of nature just as it happens in time—filling up time as it were.

Contrasted with this is the "moment," as the content of "all nature at an instant," with "no temporal extension" or thickness; and then it is essential to the whole of Dr. Whitehead's developed theory that while durations (including events), being "directly yielded to knowledge by sense-awareness," are definite natural entities and "have all the reality that nature has," the moment on the other hand "is not itself a natural event; in truth there is no nature at an instant"; it is a nonentity; Dr. Whitehead, in short, adopts what may be called a quantum theory of temporal nature.¹³

Now on what is this fundamental contrast founded? It is based, consistently with Dr. Whitehead's acceptance of sense-awareness as the criterion of natural content, on the evidence afforded by that type of consciousness. "There is no such thing as nature at an instant posited by sense-awareness. What sense-awareness delivers over for knowledge is nature through a period. Accordingly nature at an instant is not itself a real entity"; it is at best "a very useful concept."

This course of argument seems to raise two serious difficulties. In the first place, even if we accept the content of sense-awareness as our criterion, the question of the real existence of moments is determined by precisely the same method as is that of the real existence of electrons and molecules; that is, by a process of inference or reasoning.¹⁴ This process, no doubt, must begin from the real data of sense-awareness; but it is impossible to maintain, in either case, that the truth of the conclusion can be determined by sense-awareness as such, no matter how wide a meaning be given to this term. But Dr. Whitehead regards molecules and electrons as real existent factors in nature; moments, on the other hand, are *not* natural entities. And his ground for this denial of reality is not that it is irrational or inconceivable, but simply that it is not a deliverance of sense-awareness—"there is no such thing posited by sense-awareness." But exactly the same may be said of electrons

¹³ It may elucidate Dr. Whitehead's position to refer to Lotze's distinction between empty time as "a creation of our intellect" and "the succession belonging to (the operation of things) itself, which is the most proper nature of the real." *Metaphysic*, I, pp. 350, 354.

¹⁴ The exact logical character of this process is here immaterial.

and molecules. Sense-awareness combined with one course of reasoning gives us the idea of moments; these Dr. Whitehead regards as unreal, ultimately because sense-awareness, delivering nature through a period, does not posit them. Sense-awareness again, combined with another course of reasoning similar in character though differing in details, yields the idea of electrons; but these are real, although sense-awareness (purely as such) plainly does not posit these either. Thus the merely negative verdict of awareness is endorsed in one case, but repudiated in the other.

But as I have already pointed out, Dr. Whitehead admits the existence of natural factors—"there in nature"—which though "not posited by sense-awareness may be known to the intellect—not disclosed in sense-awareness but known by logical inference as necessarily in being" (pp. 125, 126). These entities may be of fundamental importance; *e.g.*, "identity of quality between congruent segments is generally of this character"; and the theory of congruence occupies the whole of Chap. VI. Thus Dr. Whitehead accepts the general principle that logical inference may contribute to the determination of the content of nature; so that it appears quite illegitimate to rule out the existence of moments simply on the ground that they are not posited in sense-awareness.

I am not of course arguing that moments have real existence, nor am I resorting to any metaphysical theory to decide the question; I merely suggest that Dr. Whitehead's arguments, as they stand, are insufficient to establish the nonentity of moments. And this leads to the second difficulty attending his position; for it is by no means so certain as he assumes it to be that sense-awareness does actually posit events or durations having temporal thickness or persistence. Again I do not deny the existence, within the content of sense-awareness, of durations in Dr. Whitehead's special sense; but there are weighty considerations which he has ignored which make it impossible to accept this durational character as pertaining to nature itself merely on the evidence of sense-awareness.

For it is possible that the durational aspect of this content is partially or even completely deceptive, and arises from the conditions determining consciousness; conditions which are of course in no sense metaphysical but purely natural, as Dr. Whitehead himself points out on p. 107. I do not assert that this durational character is deceptive, but only that this possibility is not absolutely excluded by Dr. Whitehead's theory; so that duration may be an added quality conferred by sense-awareness itself¹⁵ upon its content even while that content is at the same time a natural reality (or a nature) wholly non-durational. It is true that Dr. White-

¹⁵ Not, be it noted, by any other (ideal or conceptual) type of consciousness.

head refuses, on what are, I think, good grounds, "to countenance any theory of psychic additions to the object known in perception" (p. 29). But this does not exclude the possibility—I suggest nothing more—of awareness or observation conferring its own durational character¹⁶ upon a durationless nature; and the same applies to the remarks on p. 187. That the duration does not wholly pertain to Nature is a fact of elementary psychology; but it is further by no means inconceivable that a completely non-durational nature may give rise by perseveration and after-imagery within sense-awareness to a durational content. Were we to assume indeed that electrons were perceivable, then their enormous velocities and infinitesimal dimensions would result in something closely approaching if not identical with this state of things.¹⁷

These considerations in no way alter the problem of natural philosophy. That is still, in Dr. Whitehead's words, "to discuss the relations *inter se* of things known abstracted from the bare fact that they are known" (p. 30). But knowledge must not be wholly identified with sense-awareness; rather must the latter be criticized in the light of fuller knowledge in order to ascertain what distinctions, if any, obtain between its special content and Nature itself. Dr. Whitehead, however, prevents this being done by anticipation; for the two conditions which he assumes¹⁸ for durations preclude in advance any possibility of the reality of moments. "Nature," in short, "is nothing else than the deliverance of sense-awareness" (p. 185).

And fundamentally difficult though it undoubtedly is to regard an event as a sequence or sum or group of instantaneous moments, still Dr. Whitehead's later theory of "objects" seems to leave us no other alternative. An event, as we have seen, has (essentially) "temporal thickness"; and it also (as a whole) "passes." Still this in itself does not, I think, prevent us from thinking of an event as containing within itself constituents which, although they possess the slightest possible temporal thickness, and are therefore not instantaneous, still do not themselves "pass." There does not seem to me to be anything illogical about this possibility; Dr. Whitehead, however, excludes it by definition. For any element in nature which does not pass is an object; and an object is not an event; the characteristics of the two are mutually exclusive, in spite of their inseparable

¹⁶ In fact Dr. Whitehead points out the "passage of sense-awareness and of thought"; i.e. of sense-awareness as an activity—"a procedure of mind"—not as a content or terminus. But here again his distinction between passage and duration seems quite arbitrary, or even to have a metaphysical basis! (Pp. 66–73.)

¹⁷ Cf. the express train illustration, p. 109.

¹⁸ P. 60; that it is an assumption is obvious.

arable inter-connection (pp. 143, 144, 169). Now blue is one object; a coat is another and an electron is a third; and I think it is undeniable that all these have temporal thickness; by which (with Dr. Whitehead) I do not mean "a particular second at a definite date" (p. 149) but rather the temporal raw material given in awareness out of which dates and seconds are obtained, it matters not how. Thus objects, as such, have temporal thickness.¹⁹ Any constituent of an event therefore which has any temporal thickness, no matter how slight, and which does not pass, is not an event, but an object; so that the only possible ultimate events proper must be instantaneous. As I have said already, Dr. Whitehead seems to me to avoid this conclusion only by the prior assumption of properties of duration which exclude it in advance (p. 60). Still we may in a certain sense speak of "an object at an instant" (p. 161); what then distinguishes this from an instantaneous event? Plainly the fact that in obtaining temporal thickness it does not pass; or in other words that the event, to be an event, must retain its passage even while it assumes temporal thickness. To say that this reduces the event-particle or the moment to an abstraction is no valid objection, for "to be an abstraction . . . means that its existence is only one factor of a more concrete element of nature" (p. 171).

The exact meaning of the passage however is somewhat uncertain. "Each duration happens and passes. The process of nature can also be termed the passage of nature" (p. 54). This seems to mean that events come into being and pass away, which would constitute their uniqueness; objects, on the other hand, do not pass. The idea certainly appears to imply activity; and on p. 185 passage is given as an alternative for activity. This however would imply that objects are never active. At the same time "the event is what it is, because the object is what it is; each object is in some sense ingredient throughout nature. The ingression of every electron into nature modifies to some extent the character of every event" (pp. 144, 145, 159). It is obviously difficult therefore, particularly if electrons are eternal, to regard objects as essentially inactive; so that this equivalence between passage and activity is not easy to comprehend.

4. A few remarks in conclusion on the distinctive standpoints of science and philosophy with regard to space and time may not be superfluous. Science regards these entities as essentially measured (or at least measurable) systems which together constitute the space-time manifold. This means that the results of measurement are fully as important as that which is measured, perhaps more important;

¹⁹ This seems to be supported by each object being ingredient—i.e., active, operative, influential—throughout nature (pp. 145, 159). A musical tune, again, is also an object.

in other words, the different time- and space-systems are as material to thought as time and space themselves. Philosophy however takes a somewhat profounder view; for it time and space are in their own nature more significant than the scientific systems; somewhat as the monetary system of his own country is of primary interest to a banker, while an economist is more concerned with currency as an element in universal exchange. And now that the space-time manifold has attained such prominence, it is well to remember that it is no mysterious entity additional to time and space themselves, as though it were something wholly different in its nature within which these disappear or dissolve. Any such view would be to repeat the error so often made in dealing with time and space by erecting them into independent realities. The manifold is but the coexistence or unity of space and time, which coexist within reality in their own characters, like nitrogen and oxygen in air, not compounded into a third wholly different substance like oxygen and hydrogen in water.

Regarded in this light, there is one subject of essential importance—the uniformity of time and space throughout the universe, as distinct, *i.e.*, from any uniformity of time and space systems. As to the latter, there can be no question; observers in different situations must employ separate though interrelated systems. We may some day obtain both a common language and a general currency; but it is impossible for a universal time and space system ever to be constructed and employed; the very conditions of physical reality forbid it. But this still leaves open the question of the uniformity of time and space; the latter, *e.g.*, has been described as bent or warped or condensed in the vicinity of matter. Are these and other similar statements metaphorical or literal? Mathematical devices or descriptions of reality? Dr. Whitehead, being naturally concerned with systems, leaves the subject in some obscurity, in spite of his repudiation of Einstein's own interpretation (p. 165). "What a being under the one set of circumstances means by space will be different from that meant by a being under the other set" (p. 168); so that English and Martian observers will obtain different results from any one Earth land survey. But what is it that thus determines local differences in circumstances? In the end all circumstances resolve themselves into events. "The concrete facts of nature are events; event-particles are the ultimate elements of the manifold" (pp. 167, 173). Why, then, the question becomes, are events for *A* different from events for *B*?²⁰ Martians employ space natural

²⁰ Or event-particles; but any truly final explanation must be in terms of the concrete events. It is assumed of course that *A* and *B* both have minds of one and the same general type, otherwise the basis of difference is not, in Dr. Whitehead's sense, natural.

to them—"Martio-centric space in which that planet is fixed. Thus the *q*-space for Mars is quite different from the *p*-space on earth" (pp. 175, 176). This however must not be taken to mean that the Martian *manifold* is necessarily different from ours, for space and time denote only the relative *systems*—"are merely ways of expressing certain truths about the relations between events" (p. 168). If then the manifold itself is uniform, what is the basis of the unavoidable differentiation among the systems? It is scarcely sufficient to fall back on the "creative advance of nature" (p. 178), unless we assume that this advance in itself necessitates a non-uniform manifold,²¹ but this of course begs the question. Nor again does uniformity of the manifold necessarily follow from that of the momentary spaces and timeless spaces of p. 194; for these may be no more than mathematical or methodological devices.

But difficulties on points of detail such as those I have mentioned are inevitable; even were they far more serious, still Dr. Whitehead's work constitutes a distinct advance in the discussion of ontology; and if it could be supplemented from the strictly philosophic standpoint, we should be much nearer a lasting and satisfactory realism. There appear to me to be two marked parallel tendencies in current philosophy—one towards absolutism, the other towards realism. But absolutism has for long been misrepresented and therefore misunderstood; it has been presented at once as too subjective and too abstract.²² I do not see anything which prevents realism from taking its place within a system of absolute idealism fuller and deeper than any yet conceived. *Vestigia nulla retrorsum*, some one will say; but then the absolute is not a cave. Even if it were, we are in it already.

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A BEHAVIORISTIC ACCOUNT OF THE SIGNIFICANT SYMBOL

THE statement I wish to present rests upon the following assumptions, which I can do no more than state: I assume, provisionally, the hypothesis of the physical sciences, that physical objects and the physical universe may be analyzed into a complex of physical corpuseles. I assume that the objects of immediate ex-

²¹ As distinct, *i.e.*, from the systems. There must be some distinction, otherwise we should have systems of measurement with nothing to measure; "a measure-system measures something inherent in nature" (p. 196).

²² "The Absolutism which comes in for rebuke at the hands of pluralist critics is a fiction of their own imagination." Radhakrishnan, *Reign of Religion in Philosophy*, p. 407.